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CENTRAL INTELLIGENCE AGENCY

S-E-C-R-E-T

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COUNTRY East Germany

REPORT

SUBJECT [redacted] Miniature Radio Technology in East Germany (Production difficulties in micro-Resistances, transistors, ceramic cap component & condensers)

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

[redacted]

2. [redacted] East Germany has to be entirely self-sufficient in the manufacture of miniature equipment, relying exclusively on components of East German manufacture. [redacted] development of miniature equipment, some of importance to the Ministry of Defense, is being held up by component deficiencies. Component bottlenecks include:

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a. Micro-resistances. Shortcomings in the micro-resistances manufactured by the Werk fuer Bauelemente der Nachrichtentechnik, Teltow, necessitated stopping production at the end of 1957, but a new approach with a ceramic layer resistance is proving more successful. So far these resistances are only producible by hand.

b. Transistors. Transistors of the type required for miniature work with a minimum collector-loss-output (Kollektorverlustleistung) of 3 to 5 watts are under development but will not be available before 1960. As an exceptional and temporary measure, transistors of this type will be imported from the USSR, where they are available in quantity. Large-scale production of transistors of any type can be expected only after completion of the Frankfurt/Oder factory, i.e. in 1959 or 1960. New transistor types with 50 mW and 100 mW are going into production. Development of a 1 W transistor has been completed and it should be available in small quantities after the beginning of 1959.

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c. Miniature ceramic condensers with small capacity volumes are not available in East Germany.

d. Ceramic components from the VEB Keramische Werke Hermsdorf (Hescho) are delivered after a 6 - 10 months' delay.

e. A Mikrolyt condenser has been developed in a suitable size by the VEB Tonmechanik, Berlin-Weissensee, but is not reliable when manufactured in quantity, while the condenser manufactured by the VEB Kondensatorenwerk Gera is twice as big and has only 60% of its theoretical value at -40° C.

f. Oscillating quartz delivered by VEB Carl Zeiss Jena is not up to requirements, and delivery delays should be reduced to 4 months.

g. Richtleiter (directional conductors ?): Deliveries are delayed too long.

h. High frequency cable with short bending radius is required.

i. A light accumulator (battery) for 1.25 volts is required.

j. Subminiature tube manufacture at Erfurt has not begun because the demand for these tubes is on too small a scale.

3. Technical data of the 0.1 W portable RT set under development at Funkwerk Dresden, as reported by a representative of that factory, included the following: target weight 700 grams; set now working on 77 - 88 mcs; channel margin (Kanalabstand) of 50 kcs, 3 channels operating on the current model; nul phase modulation is used; 27 tubes.

4. Three miniature relays, suitable for miniature sets have been developed; a flat relay which will be manufactured at the VEB Werk fuer Bauelemente der Nachrichtentechnik, Gross Breitenbach, a polarized relay to be manufactured for the time being at Karl-Marx-Stadt[1], and a resonance relay to be manufactured at Funkwerk Dresden.

5. [redacted] the small-scale production of sets with printed circuits will begin in 1958, and commercial production in 1959. 25X1

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